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EXAMINER	
EWALD, MARIA VERONICA	

ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/750,534	DAVISON ET AL.	
	Examiner	Art Unit	
	MARIA VERONICA D. EWALD	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8,11,12 and 27-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,11,12 and 27-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 8, 11 – 12 and 27 – 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As written, claim 1 states that the embossing tool substrate has a major surface, having an embossing profile with a first major surface and a second major surface. The claim is unclear as to whether the major surface has a first major surface and a second major surface or whether the embossing profile has a first major surface and a second major surface. The Examiner is interpreting claim 1 such that the *substrate has a first major surface and second major surface, such surfaces each having an embossing profile.* Furthermore, it is noted that the Examiner's interpretation is consistent with what has been amended in the Specification. Newly-amended paragraphs 0069 and 0073 state that the substrate has a first and second major surface with embossing profile(s).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. (U.S. 6,805,966) in view of Okazaki, et al. (U.S. 4,723,903), DePuydt, et al. (U.S. 6,030,556) or Homola, et al. (U.S. 2004/0202865 A1).

Formato, et al. teach an apparatus comprising: an embossing tool substrate made of a first metal (column 15, lines 7 – 10), a major surface of the substrate having an embossing profile with a first major surface and a second major surface (figure 6(h)).

Formato, et al., however, is silent with respect to the presence of a first and second coating on the first major surface of the substrate, the first coating providing an adherable surface and the second coating over the first coating, the second coating providing a non-adhesive outer surface.

In an embossing apparatus, Okazaki, et al. teach an embossing tool substrate made of a first metal (item 1 – figure 3a and 3b; column 2, lines 65 – 66), a first major surface of the substrate having an embossing profile (figures 3a and 3b); a first coating over the first major surface of the substrate, the first coating providing an adherable surface (column 3, lines 1 – 3); and a second coating over the first coating, the second coating providing a non-adhesive outer surface (column 3, lines 5 – 7). The first coating allows for strengthening the adhesion between the substrate and its coating(s) and for damping the stress to the substrate (column 2, lines 65 – 68; column 3, lines 1 – 5). The second or outer coating provides a release layer, improving the separation property of the stamper from any surfaces (column 3, lines 4 – 8).

Similarly, DePuydt, et al. teach an apparatus comprising an embossing tool substrate made of a first metal, a first major surface of the substrate having an embossing profile (item 42 – figure 4; column 1, lines 15 – 20; column 7, lines 1 – 5); a first coating over the first major surface of the substrate, the first coating providing an adherable surface (column 7, lines 10 – 15); and a second coating over the first coating, the second coating providing a non-adhesive outer surface (column 7, lines 59 – 65); wherein the first coating is further comprised of three layers (a dielectric layer and a patterning layer comprised of two distinct layers), wherein there is a first layer of a second metal deposited over the embossing tool substrate (column 7, lines 28 – 31, 45 – 50); a subsequent layer over the base layer of second metal (column 5, lines 25 – 35, 58 – 60); and the third layer (column 5, lines 58 – 60). Furthermore, the second coating, also known as the cap coating or cap layer is provided to reduce or prevent disruptions to the planarity of the patterning material layers of the first coating (column 7, lines 60 – 65). DePuydt, et al. further teach that the layers of the individual layers depends on the desired pit depth in the discs to be stamped or formed (column 6, lines 60 – 65).

In addition, Homola, et al. teach an apparatus comprising: an embossing tool substrate made of a first metal (item 110 – figure 1a; paragraph 0020), a first major surface of the substrate having an embossing profile (figure 1a); a first coating over the first major surface of the substrate, the first coating providing an adherable surface (item 130 – paragraph 0022); and a second coating over the first coating, the second coating providing a non-adhesive outer surface (item 120 – figure 1a; paragraph 0019). Homola, et al. further teach that the coatings enable the stamper to exhibit high temperature

resistance, allowing repeated use without extensive wear and also facilitates separation of the stamper from the embossable surface (paragraph 0019).

Thus, because Formato, et al., Okazaki, et al., DePuydt, et al. and Homola, et al. teach embossing apparatus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the stamper of Formato, et al. with the first and second coatings, as taught by Okazaki, et al., DePuydt, et al., or Homola, et al. for the purpose(s) of dampening stress to the substrate, promoting adhesion between the substrate and its coating, and improving the separation property of the stamper from surfaces it may contact.

Claims 2 – 3 and 5 – 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of either Okazaki, et al. or DePuydt, et al., in view of Ohman, et al. (U.S. 6,454,970) and further in view of Imatomi (U.S. 2006/0051453 A1). Formato, et al., Okazaki, et al. and DePuydt, et al. teach the characteristics previously described but do not teach the specific metals in a multi-layered stamper, comprised of a layer of a second metal, a layer of a metal oxide and a layer of a metal nitride, respectively. It is important to note, however, that Okazaki, et al. teach that the stamper can be comprised of multiple layers of metal film over the substrate base, the layers providing for strengthening adhesion or damping the stress encountered by the stamper and thus, prolonging its useful life. In addition, DePuydt, et al., do disclose the substrate with its multi-layered coating, such that the coating layers range in thickness from 10 – 200 nm. It is, therefore, known to one of ordinary skill in the art to apply metal or metal

alloys in the formation of a substrate tool in layers and to ensure that such layers are very thin.

Ohman, et al. teach the use of a three-layered substrate, comprised of a base metal layer, a thin layer of a second metal with good electrical characteristics, and a hard, wear-resistant layer, providing good release characteristics when contacted against the plastic element to be embossed (column 19, lines 15 – 25). The outermost wear-resistant layer consists of up to 5 micrometers (μm) of titanium nitride. In addition, Ohman, et al. teach that the respective layers should be fairly thin (< 20 μm or between 2 – 10 μm) to produce optimum results (column 18, lines 10 – 13). Furthermore, though the Applicant has claimed the specific thicknesses of 0.5 μm and 2 – 9 μm, the Applicant has not introduced specific reasoning for utilizing such thicknesses. On the other hand, Ohman, et al. has stated that practically, very thin layers produce optimum results. Therefore, one of ordinary skill in the art would conclude that optimum results and higher quality substrates are produced with thinner layers.

Furthermore, in a method to manufacture a metal mold device, Imatomi teaches that components of the mold may be produced with layers (paragraph 0090), wherein there is a base layer, an inner layer and an outermost layer. The inner and outermost layers may be made of zirconium oxide and/or zirconium nitride among other metal compounds that may be used. The use of zirconium nitride and oxide provides good wear-resistant characteristics and toughness (paragraph 0091).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify stamper of Formato, et al. with the coatings of

either Okazaki, et al. or DePuydt, et al. further configured with the zirconium oxide and zirconium nitride layers of Imatomi, et al., and ensuring that the layers are very thin, as taught Ohman, et al. for the purposes of providing layers, with toughness and good wear-resistance as taught by Imatomi and producing optimum results as taught by Ohman, et al.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of Okazaki, et al. or DePuydt, et al. and further in view of Cheung, et al. (U.S. 6,210,514). Formato, et al., Okazaki, et al., and DePuydt, et al. teach the characteristics previously described but do not teach that the second coating is comprised of polyparaxylylene.

In a method to fabricate thin film structures onto a substrate, Cheung, et al. teach the use of dielectric deposition of parylene C (paraxylylene), of 5 μm thick, onto the substrate (column 11, lines 35 – 37). The dielectric deposition of such a coating enhances moisture and chemical barrier properties of the finished assembly (column 11, lines 43 – 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the stamper of Formato, et al. with the coatings of either Okazaki, et al. or DePuydt, et al., further configured such that paraxylylene is used as the cap layer or second coating for the purpose of maintaining the integrity and chemical properties of the patterning layer in the first coating.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of either Okazaki, et al. or DePuydt, et al., in view of Ohman, et al., in view of Imatomi and further in view of Cheung, et al. Formato, et al., Okazaki, et al., DePuydt, et al., Ohman, et al. and Imatomi teach the characteristics previously described but do not teach that the second coating is comprised of polyparaxylylene.

In a method to fabricate thin film structures onto a substrate, Cheung, et al. teach the use of dielectric deposition of parylene C (paraxylylene), of 5 μm thick, onto the substrate (column 11, lines 35 – 37). The dielectric deposition of such a coating enhances moisture and chemical barrier properties of the finished assembly (column 11, lines 43 – 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the stamper of Formato, et al. with the coatings of either Okazaki, et al. or DePuydt, et al., further configured further configured with the multi-layered composition of Ohman, et al. and Imatomi, such that paraxylylene is used as the cap layer or second coating for the purpose of maintaining the integrity and chemical properties of the patterning layer in the first coating.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of either Okazaki, et al., DePuydt, et al. or Homola, et al. in view of Wago, et al. (U.S. 6,869,557). Formato, et al., Okazaki, et al., DePuydt, et al. and Homola, et al. do not explicitly teach that the apparatus for embossing is further

comprised of a heater and a pressure apparatus; however, it is obvious that both of these elements are present in such typical embossing or stamping apparatus.

For example, in a method to emboss or stamp a disk during thermal imprint lithography, Wago, et al. teach the use of both a heating apparatus to heat the embossable substrate and stamper (figure 2) and a pressure apparatus to apply the necessary pressure (10 MPa shown) to adequately transfer the negative pattern from the stamper surface to the embossable substrate, producing the opposite, positive pattern on the substrate surface (figure 2).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the embossing tool of Formato, et al. with the coatings of Okazaki, et al., DePuydt, et al. or Homola, et al., further configured with a heating apparatus and pressure apparatus to adequately perform thermal imprint lithography, wherein the heat is used to heat the stamper and disk or embossable substrate (allowing the deformation of the substrate surface) and wherein the pressure is used to adequately transfer the negative pattern on the stamper surface to the substrate surface, resulting in a positive or opposite pattern.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of Okazaki, et al. in view of Imatomi. Formato, et al. and Okazaki, et al. teach the characteristics previously described, but do not specifically teach that the substrate is coated with a layer of zirconium and a layer of zirconium nitride over the layer of zirconium. It is important to note, however, that Okazaki, et al. teach that the

stamper can be comprised of multiple layers of metal film over the substrate base, the layers providing for strengthening adhesion or damping the stress encountered by the stamper and thus, prolonging its useful life.

In a method to manufacture a metal mold device, Imatomi teaches that components of the mold may be produced with layers (paragraph 0090), wherein there is a base layer, an inner layer and an outermost layer. The inner and outermost layers may be made of zirconium oxide and/or zirconium nitride among other metal compounds that may be used. The use of zirconium nitride and oxide provides good wear-resistant characteristics and toughness (paragraph 0091).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the stamper of Formato, et al. with the coatings of Okazaki, et al., further configured with the zirconium oxide and zirconium nitride layers of Imatomi, for the purposes of providing layers with toughness and good wear-resistance as taught by Imatomi.

Claims 27 – 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of Okazaki, et al., DePuydt, et al. or Homola, et al., in view of Ohman, et al., in view of Imatomi and further in view of Cheung, et al.

Formato, et al. teach an apparatus comprising: an embossing tool substrate made of a first metal (column 15, lines 7 – 10), a major surface of the substrate having an embossing profile with a first major surface and a second major surface (figure 6(h)).

Formato, et al., however, is silent with respect to the presence of a first and second coating on the first major surface of the substrate, the first coating providing an adherable surface and the second coating over the first coating, the second coating providing a non-adhesive outer surface, wherein the first coating is comprised of a layer of a second metal deposited over the embossing tool substrate; a layer of metal oxide deposited over the layer of the second metal; and a layer of metal nitride deposited over the layer of metal oxide; and wherein the second coating comprises poly-para-xylylene.

In an embossing apparatus, Okazaki, et al. teach an embossing tool substrate made of a first metal (item 1 – figure 3a and 3b; column 2, lines 65 – 66), a first major surface of the substrate having an embossing profile (figures 3a and 3b); a first coating over the first major surface of the substrate, the first coating providing an adherable surface (column 3, lines 1 – 3); and a second coating over the first coating, the second coating providing a non-adhesive outer surface (column 3, lines 5 – 7). The first coating allows for strengthening the adhesion between the substrate and its coating(s) and for damping the stress to the substrate (column 2, lines 65 – 68; column 3, lines 1 – 5). The second or outer coating provides a release layer, improving the separation property of the stamper from any surfaces (column 3, lines 4 – 8).

Similarly, DePuydt, et al. teach an apparatus comprising an embossing tool substrate made of a first metal, a first major surface of the substrate having an embossing profile (item 42 – figure 4; column 1, lines 15 – 20; column 7, lines 1 – 5); a first coating over the first major surface of the substrate, the first coating providing an adherable surface (column 7, lines 10 – 15); and a second coating over the first coating,

the second coating providing a non-adhesive outer surface (column 7, lines 59 – 65); wherein the first coating is further comprised of three layers (a dielectric layer and a patterning layer comprised of two distinct layers), wherein there is a first layer of a second metal deposited over the embossing tool substrate (column 7, lines 28 – 31, 45 – 50); a subsequent layer over the base layer of second metal (column 5, lines 25 – 35, 58 – 60); and the third layer (column 5, lines 58 – 60). Furthermore, the second coating, also known as the cap coating or cap layer is provided to reduce or prevent disruptions to the planarity of the patterning material layers of the first coating (column 7, lines 60 – 65). DePuydt, et al. further teach that the layers of the individual layers depends on the desired pit depth in the discs to be stamped or formed (column 6, lines 60 – 65).

In addition, Homola, et al. teach an apparatus comprising: an embossing tool substrate made of a first metal (item 110 – figure 1a; paragraph 0020), a first major surface of the substrate having an embossing profile (figure 1a); a first coating over the first major surface of the substrate, the first coating providing an adherable surface (item 130 – paragraph 0022); and a second coating over the first coating, the second coating providing a non-adhesive outer surface (item 120 – figure 1a; paragraph 0019). Homola, et al. further teach that the coatings enable the stamper to exhibit high temperature resistance, allowing repeated use without extensive wear and also facilitates separation of the stamper from the embossable surface (paragraph 0019).

Furthermore, with respect to a multi-layered coating, Ohman, et al. teach the use of a three-layered substrate, comprised of a base metal layer, a thin layer of a second metal with good electrical characteristics, and a hard, wear-resistant layer, providing

good release characteristics when contacted against the plastic element to be embossed (column 19, lines 15 – 25). The outermost wear-resistant layer consists of up to 5 micrometers (μm) of titanium nitride. In addition, Ohman, et al. teach that the respective layers should be fairly thin (< 20 μm or between 2 – 10 μm) to produce optimum results (column 18, lines 10 – 13). Furthermore, though the Applicant has claimed the specific thicknesses of 0.5 μm and 2 – 9 μm, the Applicant has not introduced specific reasoning for utilizing such thicknesses. On the other hand, Ohman, et al. has stated that practically, very thin layers produce optimum results. Therefore, one of ordinary skill in the art would conclude that optimum results and higher quality substrates are produced with thinner layers.

Furthermore, in a method to manufacture a metal mold device, Imatomi teaches that components of the mold may be produced with layers (paragraph 0090), wherein there is a base layer, an inner layer and an outermost layer. The inner and outermost layers may be made of zirconium oxide and/or zirconium nitride among other metal compounds that may be used. The use of zirconium nitride and oxide provides good wear-resistant characteristics and toughness (paragraph 0091).

In addition, in a method to fabricate thin film structures onto a substrate, Cheung, et al. teach the use of dielectric deposition of parylene C (paraxylylene), of 5 μm thick, onto the substrate (column 11, lines 35 – 37). The dielectric deposition of such a coating enhances moisture and chemical barrier properties of the finished assembly (column 11, lines 43 – 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the stamper of Formato, et al. with the coatings of either Okazaki, et al., DePuydt, et al. or Homola, et al. for the purpose(s) of dampening stress to the substrate, promoting adhesion between the substrate and its coating, and improving the separation property of the stamper from surfaces it may contact, further configured with the zirconium oxide and zirconium nitride layers of Imatomi, et al., and ensuring that the layers are very thin, as taught Ohman, et al. for the purposes of providing layers, with toughness and good wear-resistance as taught by Imatomi and producing optimum results as taught by Ohman, et al., further configured such that paraxylylene is used as the cap layer or second coating for the purpose of maintaining the integrity and chemical properties of the patterning layer in the first coating.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Formato, et al. in view of Okazaki, et al., DePuydt, et al. or Homola, et al., in view of Ohman, et al., in view of Imatomi, in view of Cheung, et al., and further in view of Wago, et al. Formato, et al., Okazaki, et al., DePuydt, et al., Homola, et al., Ohman, et al., Imatomi, and Cheung, et al. teach the characteristics previously described but do not explicitly teach that the apparatus for embossing is further comprised of a heater and a pressure apparatus; however, it is obvious that both of these elements are present in such typical embossing or stamping apparatus.

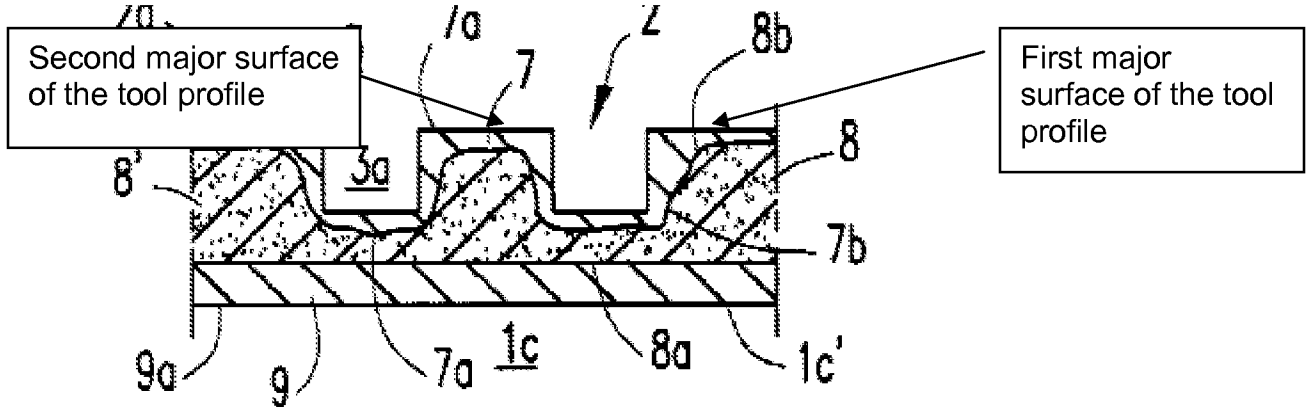
For example, in a method to emboss or stamp a disk during thermal imprint lithography, Wago, et al. teach the use of both a heating apparatus to heat the embossable substrate and stamper (figure 2) and a pressure apparatus to apply the necessary pressure (10 MPa shown) to adequately transfer the negative pattern from the stamper surface to the embossable substrate, producing the opposite, positive pattern on the substrate surface (figure 2).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the embossing tool of Formato, et al. with the coatings of Okazaki, et al., DePuydt, et al. or Homola, et al., further configured with the multi-layered coatings of Ohman, et al. and Imatomi, configured with the coating such that it is poly-para-xylylene as taught by Cheung, et al. further configured with a heating apparatus and pressure apparatus to adequately perform thermal imprint lithography, wherein the heat is used to heat the stamper and disk or embossable substrate (allowing the deformation of the substrate surface) and wherein the pressure is used to adequately transfer the negative pattern on the stamper surface to the substrate surface, resulting in a positive or opposite pattern.

Response to Arguments

15. Applicant's arguments filed January 26, 2009 have been fully considered but they are not persuasive. With respect to Applicant's arguments regarding the rejection under 35 U.S.C. 112, 2nd paragraph, Applicant argues that the Examiner's interpretation of the claim is not consistent with what is disclosed. The Examiner disagrees. The

Examiner is fully aware that what is claimed is a dual-sided stamper or a stamper with a pattern on opposite sides. Furthermore, as the Examiner stated in the previous rejection, the Examiner is interpreting the claim, such that the tool (or stamper) has a first and second major surface, each with an embossing profile, *not a first and second profile, but merely an embossing profile on each surface.* As written, the claim is still unclear because one may interpret the claim according to the following drawing below:



Thus, one may also interpret the claim such that the tool has *a (or one) major surface with an embossing profile or pattern, the pattern having a first and second major surface.* Though the Examiner is aware that is not what is claimed, the claim is still unclear and requires clarification. The claim may be clearer if written per the following recommendation: an embossing tool substrate made of a first metal, the substrate with first and second major surfaces, the first and second major surfaces with an embossing profile. The Examiner is also noting that such a change is consistent with figures 7 and 8.

With respect to claim 1, Applicant argues that the secondary reference of Okazaki does not teach any coatings on the second major surface. The Examiner

agrees with this point; *however*, the primary reference of Formato teaches a dual-sided stamper and thus, contends that one of ordinary skill in the art of imprinting and/or embossing has the common sense to apply the coatings of Okazaki to the embossing pattern of Formato, thereby coating both sides.

With respect to the secondary reference of DePuydt, Applicant has presented the same arguments as in previous office actions. The Examiner disagrees with the arguments and maintains the same responses as noted in the previous office actions.

With respect to the secondary reference of Homola, Applicant argues that the reference is lacking and cannot be applied because Homola fails to identify layer 130 in the drawings. Though the drawings do not identify layer 130, Homola's specification clearly defines what layer 130 is and where the layer is to be placed on the stamper surface. Per paragraph 0022, Homola states "an oxide layer 130 may be disposed between body 110 and coating 120." Thus, one of ordinary skill in the art would interpret from such a teaching that the oxide layer is disposed between the substrate body and coating. Furthermore, Homola clearly states that coating 120 is the exterior or polymer (perfluoroether) coating, which faces the embossable layer on a substrate, thereby facilitating separation between the stamper and the disk (or substrate) (paragraph 0019). The intermediate oxide layer may also provide good adhesion of the coating onto the body (paragraph 0022). Thus, Homola clearly teaches an outer coating which provides a surface facilitating release from the embossable layer and an intermediate layer providing adhesion between the coating and the body.

With respect to claims 2, 3, 5 and 6, Applicant presents arguments presented in previous office actions. The Examiner disagrees with such arguments and maintains the responses as noted in the previous office actions.

With respect to claim 4, Applicant again presents arguments from previous office actions. The Examiner again disagrees with such arguments and maintains the responses as noted in the previous office actions.

With respect to claim(s) 8, 11 and 12, Applicant again presents arguments from previous office actions. The Examiner disagrees with such arguments and maintains the responses as noted in the previous office actions.

With respect to claims 27 – 29, Applicant argues that Okazaki's tool does not have coatings over the second major surface. The Examiner agrees with this point; *however*, the primary reference of Formato teaches a dual-sided stamper and thus, contends that one of ordinary skill in the art of imprinting and/or embossing has the common sense to apply the coatings of Okazaki to the embossing pattern of Formato, thereby coating both sides.

Applicant further argues that the reference of DePuydt do not teach dissimilar materials for the cap layer and layer 44. As noted in previous rejections, addressing whether DePuydt teaches adherable and non-adherable qualities, the Examiner disagrees with Applicant that DePuydt does not teach such qualities. First of all, DePuydt, et al. teach a substrate, which can be made of metal (column 7, lines 1 - 10), on which a dielectric layer is placed (item 44 - figure 4), of which the dielectric layer also serves to promote adhesion between the substrate and the patterning material (column

7, lines 40 - 45) and thus, the dielectric or first coating provides an adherable surface. With respect to the non-adhesive qualities of the cap layer, because the cap layer contacts the disc being imprinted or embossed, the cap layer inherently possesses a releasable property or non-adhering property, such that it can easily be removed from the disc without deforming or warping the surface of the disc.

Again, Applicant argues that the reference of Homola cannot remedy limitations missing in Formato. Similar to Applicant's arguments regarding claim 1, Applicant again argues that that the reference is lacking and cannot be applied because Homola fails to identify layer 130 in the drawings. The Examiner disagrees. Though the drawings do not identify layer 130, Homola's specification clearly defines what layer 130 is and where the layer is to be placed on the stamper surface. Per paragraph 0022, Homola states "an oxide layer 130 may be disposed between body 110 and coating 120." Thus, one of ordinary skill in the art would interpret from such a teaching that the oxide layer is disposed between the substrate body and coating. Furthermore, Homola clearly states that coating 120 is the exterior or polymer (perfluoroether) coating, which faces the embossable layer on a substrate, thereby facilitating separation between the stamper and the disk (or substrate) (paragraph 0019). The intermediate oxide layer may also provide good adhesion of the coating onto the body (paragraph 0022). Thus, Homola clearly teaches an outer coating which provides a surface facilitating release from the embossable layer (*a non-adhesive outer surface*) and an intermediate layer providing adhesion between the coating and the body.

With respect to Applicant's arguments regarding the references of Ohman, and Cheung, Applicant presents arguments from previous office actions. The Examiner does not find such arguments persuasive and maintains the responses as noted in previous office actions.

With respect to claim 30, Applicant reiterates arguments from previous office actions and those similar to claims 11 and 12. Again, the Examiner disagrees with such arguments and maintains the responses as noted in the previous office actions.

In summary, the Examiner does not find the repeated arguments persuasive and maintains the rejections for the reasons as noted above and for those as noted in previous office actions.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA VERONICA D. EWALD whose telephone number is (571)272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVE

/Maria Veronica D Ewald/
Examiner, Art Unit 1791